

### **REMARKS**

Claims 1-21, 25-40 and 43-45 are pending in this application. Claims 15-17 are allowed. Claims 3-9, 18-21, 25-29, 32-40 and 43-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

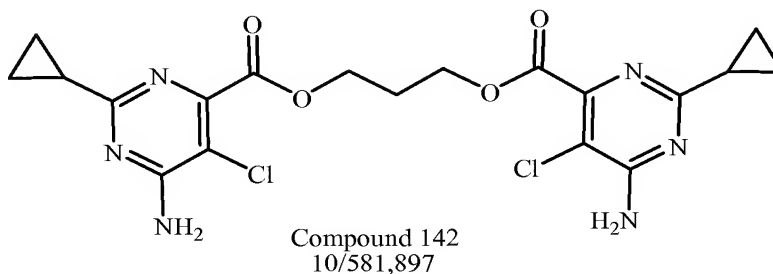
Claim 1 is now amended to remove “nitro” from the definition of R<sup>3</sup> as discussed below. Explicit basis for removing “nitro” is found in Embodiment 49 on page 16, line 4. Claim 1 is also amended to correct the numbering of the second proviso; “proviso (c)” is re-labeled “proviso (b)”. The two provisos are separated by the word “and”. The last line of Claim 1 is amended to remove a semicolon.

#### **Claim Rejection under 35 U.S.C. §112:**

The Examiner rejects Claim 2 under 35 U.S.C. §112 second paragraph as not being enabled by the specification. The Examiner states that Claim 2 is rejected under the second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that the specification does not provide any explanation of the above recitations nor illustrates the above with examples

#### **Applicants' Response:**

By way of example, Applicants note support for this term on page 11 lines 30-35 and literal support on page 12, lines 15-17 of the specification. Applicants also note compound 142 in Index Table C on page 69 as exemplifying a compound of Formula 1 wherein ‘each of the two pyridine ring systems are linked by a divalent radical’ through -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-;



#### **Claim Rejections under 35 U.S.C. §102:**

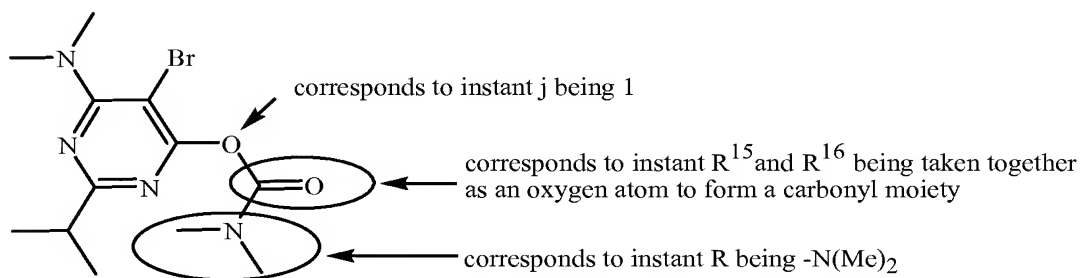
1. The Examiner rejects Claims 1, 10 through 14 and 30 through 31 under 35 U.S.C §102(b) over Hoegerle et al. (U.S. Patent 4,490,375). The Examiner alleges that the instant claims read on the disclosed compounds by referencing structural formula (I) in col. 1 and the corresponding species of compound No. 4 in col 7. The Examiner alleges that the

reference compounds are disclosed to have plant growth regulating properties (see col. 2, lines 57-59). The instant claims recite that  $R^2$  is  $((O_jC(R^{15})(R^{16}))_kR$  wherein  $j$  and  $k$  are 0 or 1; and  $R$  is a herbicidally effective derivative of  $CO_2H$  and the specification (see page 10, lines 21-28) provides that the groups represented by  $R$  include carboxamide.

Applicant's Response:

Applicants respectfully point out that, in fact, the present definition of  $R^2$  being  $((O_jC(R^{15})(R^{16}))_kR$  does not overlap the *N,N*-dimethylcarboxyloxy substituent of the Hoegerle et al. compounds. Using Compound 4 of Hoegerle et al. cited by the Examiner for illustration, the linking oxygen of the *N,N*-dimethylcarboxyloxy substituent corresponds to instant  $j$  being 1. The carbonyl of the *N,N*-dimethylcarboxyloxy substituent corresponds to instant  $R^{15}$  and  $R^{16}$  being taken together as an oxygen atom to form a carbonyl moiety. This leaves the dimethylamino of the *N,N*-dimethylcarboxyloxy substituent to correspond to instant  $R$ . However,  $R$  is defined as being  $CO_2H$  or a herbicidally effective derivative thereof on page 10, lines 21–28, which does not include amino groups.

Applicants further point out that while the present definition of  $R$  includes carboxamides such as *N,N*-dimethylcarboxyl, the definition of  $((O_jC(R^{15})(R^{16}))_kR$  does not accommodate retaining O while excluding  $C(R^{15})(R^{16})$  to arrive at the compounds of Hoegerle et al.. This reference does not teach or suggest compounds corresponding to the insertion of  $C(R^{15})(R^{16})$  into *N,N*-dimethylcarboxyloxy.



Compound 4 from Hoegerle

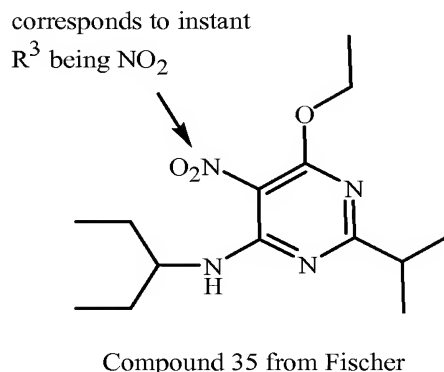
2. The Examiner rejects Claims 1, 10-14 and 30-31 under 35 U.S.C 102(b) over Fischer (U.S. Patent 4,014,677). He alleges that the instant claims read on the instant compounds (see structural formula (I) in col. 1) and the corresponding species of compound No. 29-36 in col 11-12 (and particularly referencing compound).

The Examiner states that the reference further teaches the salts of the compounds of formula (I) (see Column 2). Further, the Examiner alleges that the reference teaches that "the alkyl, alkoxy, alkylthio radicals represented by  $R_2$  can be further substituted by alkoxy,

alkylthio, halogen and cycloalkyl". The reference compounds are disclosed to be useful as herbicides and plant growth regulators see col. 15. The instant claims recite that  $R^2$  is  $((O_jC(R^{15})(R^{16}))_kR$  wherein j and k are 0 or 1; and R is a herbicidally effective derivative of  $CO_2H$  and the specification (see page 10, lines 21-28) provides that the groups represented by R include any salt, ether etc.

Applicants' Response:

Applicants respectfully point out that present Claim 1 as amended does not overlap the compound description of Fischer et al.. The Fischer compounds require a nitro group, which does not overlap the present claims in view of the amendment removing nitro from instant  $R^3$ . In view of this difference, Fischer neither teaches nor suggests the compounds of the present invention.



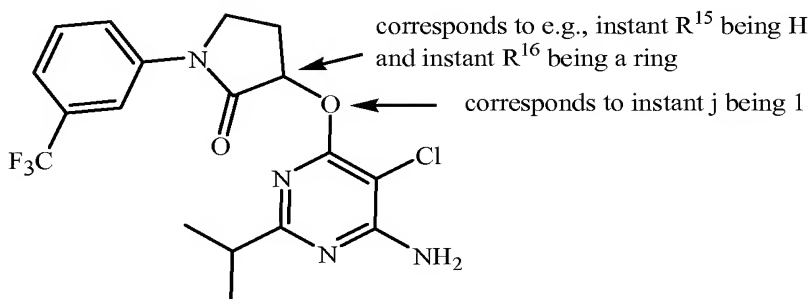
3. The Examiner rejects Claims 1, 10-14 and 30-31 under 35 U.S.C 102(b) over Bojack et al. (U.S. Patent Application Publication No. 2003/0171218). The Examiner states that the instant claims read on the reference compounds referencing structural formula (I) in page 1 and the corresponding species of compounds No. C18-C24 on page 24 (particularly pointing out compound 19).

The Examiner states that the reference compounds are disclosed to have excellent herbicidal activity (see page 12 paragraph [0097]). The Examiner alleges that the instant claims recite that is  $((O_jC(R^{15})(R^{16}))_kR$  wherein j and k are 0 or 1; and R is a herbicidally effective derivative of  $CO_2H$  and the specification (see page 10, lines 21-28) provides that the groups represented by the term "herbicidally effective derivative of  $CO_2H$ " includes numerous groups 'known in the art which does not extinguish the herbicidal activity of the compound and is or can be hydrolyzed, oxidized, reduced, or otherwise metabolized in plants or soil to provide the carboxylic acid function'. The Examiner states that the above definition of the term includes numerous possibilities and therefore, given the broadest interpretation of

the claims recitation, the compound of the instant claims includes the reference disclosed compounds.

Applicant's Response:

Applicants traverse this rejection, noting that the literal definitions of instant  $R^{15}$  and  $R^{16}$  do not accommodate the lactam rings of the compounds of Bojack et al.. Applicants appreciate the Examiner properly providing the broadest reasonable interpretation of R being a herbicidally effective derivative of  $CO_2H$ , but note that forming the lactam rings of Bojack et al. would require more than just R. With reference to Compound C19 cited by the Examiner for illustration, the oxygen atom linking the lactam ring would correspond to instant j being 1. The adjacent carbon atom ring member of the lactam ring would correspond to instant  $C(R^{15})(R^{16})$ . One of  $R^{15}$  and  $R^{16}$  would need to be hydrogen and the other of  $R^{15}$  and  $R^{16}$  would need to join with the amide nitrogen atom to form the lactam ring, but the present literal definitions of  $R^{15}$  and  $R^{16}$  do not accommodate forming a lactam ring or any of the rings required by Bojack et al. Therefore this reference does not teach or suggest the compounds of the present invention.



Compound C19 from Bojack et al.

Claim Rejection under 35 U.S.C §103(a):

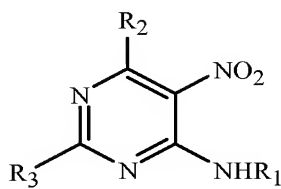
The Examiner rejects Claims 1-2, 10-14 and 30-31 under 35 U.S.C §103(a) over Fischer U.S. Patent 4,014,677 and alleges that the reference teaches a generic group of 5-nitro pyrimidine compounds which allegedly embrace Applicant's instantly claimed compounds.. The Examiner makes special reference to certain particularly named compounds No. 29-36 in col. 11-12. The Examiner alleges that the reference teaches that salts of the compounds of formula (I) (see Column 2), teaches that "the alkyl, alkoxy, alkylthio radicals represented by  $R^2$  can be further substituted by alkoxy, alkylthio, halogen and cycloalkyl".

The instant claims recite that  $R^2$  is  $((O_jC(R^{15})(R^{16}))_kR$  wherein j and k are 0 or 1; and R is a herbicidally effective derivative of  $CO_2H$  and the specification (see page 10, lines 21-28) provides that the groups represented by R include any salt, ether, etc. Further the

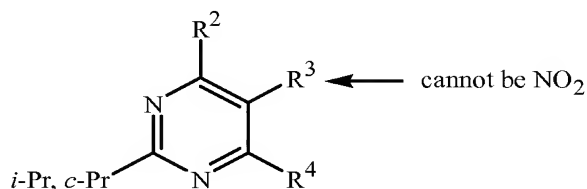
definition of  $R^2$  according to claims 2 includes the group  $CH_2OR^{13}$  wherein  $R^{13}$  can be an alkyl (i.e. a methyl substituted with an alkoxy). The reference compounds are disclosed to be useful as herbicides and plant growth regulators (see col. 15). The instant claims differ from the reference by reciting specific species or a more limited subgenus than the reference. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species of the genus taught by the reference, including those instantly claimed, because the skilled chemist would have the reasonable expectation that any of the species of the genus as a whole i.e., as herbicides.

#### Applicants' Response

The Examiner notes that Fischer teaches a generic group of 5-nitro pyrimidine compounds. To further distinguish the presently claimed invention from the compound disclosure of Fischer, Applicants have now amended Claim 1 to remove "nitro" from the definition of  $R^3$ , and accordingly request reconsideration. The presently claimed compounds have  $R^3$  being halogen,  $OR^{20}$ ,  $SR^{21}$  or  $N(R^{22})(R^{23})$ , which are not taught or suggested by Fischer. Fischer requires nitro at this position. As these groups have shapes, sizes and electronic characters distinctly different from nitro, one of ordinary skill in the art would not be motivated to select these groups as substitutes for nitro with reasonable expectation of success in providing herbicides.



formula I from Fischer



Formula I from 10/581,897

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,

EDWARD F. REHBERG  
ATTORNEY FOR APPLICANTS  
Registration No.: 34,703  
Telephone: (302) 992-4123  
Facsimile: (302) 355-3982

Dated: June 24, 2010